PB85-249613

Superfund Record of Decision (EPA Region 5)
Cross Brothers Pail Recycling Site
Pembroke Township, Kankakee County, Illinois
(Initial Remedial Measure), March 1985

(U.S.) Environmental Protection Agency
Washington, DC

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U.S. Department of Commerce
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Agency

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EPA

Superfund Record of Decision:

Cross Brothers, IL (IRM)

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Cross Brothers' uncontrolled hazardous waste site is located approximately 14 miles east of the City of Kankakee, Illinois, within Pembroke Township of Kankakee County. The site consists of a 20-acre parcel of land surrounded primarily by low density single family housing. Abner and James Cross operated a drum and pail reclaiming operation at the site from 1961 until 1980. The operation employed a crude process to incinerate the residue material that was contained in nearly all of the drums and pails received for reconditioning. Essentially, the operation consisted of inverting the containers to allow the residue materials to drain out onto the ground. Then solvent would be added to the containers to dissolve any remaining residue. Throughout the container reclamation process, the Cross Brothers' operation was extremely haphazard, allowing the indiscriminant dumping of great quantities of residues (largely dyes, paints, inks and solvents).

The selected remedial action includes offsite disposal of surficial and buried waste materials and visibly contaminated soil. Total capital cost for the selected remedial alternative is estimated to be $377,728.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field Group
Record of Decision Cross Brothers, IL (IRM) Contaminated Media: soil Key contaminants: dyes, paints, inks and solvents		

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RECORD OF DECISION

INITIAL REMEDIAL MEASURES SELECTION

Site: Cross Brothers Pail Recycling Site, Pembroke Township, Kankakee County, Illinois.

Documents Reviewed

I have reviewed the following documents describing the analysis of cost-effectiveness of remedial action alternatives for the Cross Brothers site.

- Feasibility Study, Pembroke/Cross Brothers Site
- Public comments and recommendations
- Responsiveness summary

Description of Selected Remedy

- Off-site disposal of surficial and buried waste materials and visibly contaminated soil.

Declarations

Consistent with the Comprehensive Environmental Response Compensation and Liability Act of 1980, 42 U.S.C. 9601 et seq., and the National Contingency Plan, 40 CFR Part 300, I have determined that implementing the off-site disposal of surficial and buried waste materials, and visibly contaminatd soil is a cost-effective initial remedial measure and provides adequate protection of public health, welfare and the environment. The State of Illinois has been consulted and agrees with this recommended action.

I have also determined that the action has been approved for funding from the Hazardous Substance Response Trust Fund.

The U.S. Environmental Protection Agency, with the Illinois Environmental Protection Agency taking the lead, is continuing its remedial investigation/feasibility study (RI/FS) to investigate potential groundwater and soil contamination in order to evaluate potential remedial actions. If additional remedial actions are determined to be necessary, a Record of Decision will be prepared for their approval.

March 25th, 1985
Date

Valdas V. Adamkus
Regional Administrator

SUMMARY OF INITIAL REMEDIAL MEASURES SELECTION
CROSS BROTHERS SITE
PEMBROKE TOWNSHIP, ILLINOIS

SITE LOCATION AND DESCRIPTION

The Cross Brothers uncontrolled hazardous waste site is located approximately 14 miles east of the City of Kankakee, Illinois, within Pembroke Township of Kankakee County. The site is located on an approximately 20-acre parcel. The land use in the immediate vicinity of the site is comprised of low density single family housing. Outside the immediate vicinity of the site, agriculture is the predominant land use.

The topography of the area is generally rolling with occasional sand dunes forming the local topographic highs. No surface water bodies exist within approximately one mile of the site due to the highly permeable nature of the soil in the area.

The upper geology of the site consists of unconsolidated sand deposits through which precipitation and groundwater can move freely. Because this upper sand unit is highly permeable, it is readily susceptible to contamination from surface activities. The Yorkville Till Member of the Wedron Formation, a relatively impermeable strata, lies below this sand unit at a depth of 50 to 70 feet. The Yorkville Till is a gray, calcareous, silty clay which contains traces of dolomitic pebbles and sand lenses. The thickness of the Yorkville Till beneath the Cross Brothers Site varies from 5 to 10 feet. The Yorkville Till mantles the Silurian-aged bedrock aquifer at a depth of approximately 70 feet. This aquifer is a fractured and creviced dolomite which belongs to the Hunton Megagroup. Both the unconsolidated sand deposits and Silurian dolomite serve as a source of water to residential wells in the area.

There are 14 privately owned shallow, sand-point wells within 1/2 mile of the site. Movement of groundwater in the shallow unconfined aquifer is in a north-northeasterly direction. As a result of the contaminant plume emanating from the site, two residential wells north of the site were voluntarily abandoned by their owners. Organic solvents, phenols and heavy metals were found in these wells.

SITE HISTORY

Abner and James Cross operated a drum and pail reclaiming operation at the site since 1961. The operation employed a crude process to incinerate the residue material that was contained in nearly all of the drums and pails received for reconditioning. Essentially, the operation consisted of inverting the containers to allow the residue materials to drain out onto the ground. Then solvent would be added to the containers to dissolve any remaining residue. Following that, the containers went through an incineration process to burn out remaining materials, or the materials were merely ignited in the containers and allowed to burn openly. Following incineration, the containers were reconditioned, repainted and sold. Throughout the container reclamation process, the Cross Brothers' operation was extremely haphazard, allowing the indiscriminant dumping of great quantities of residues (largely dyes, paints, inks and solvents).

The Cross Brothers Site was listed on the National Priorities List in December of 1982. Study of the site began after the entry of a Cooperative Agreement between IEPA and U.S. EPA on May 4, 1983. The Remedial Investigation and Feasibility Study Reports were finalized in June 1984.

ENFORCEMENT

On July 23, 1980, the Illinois Attorney General's Office and the Illinois Environmental Protection Agency (IEPA) inspected the site. Based on the information gained during that inspection, the Attorney General's Office obtained a court order on August 19, 1980, to close down the operation and cleanup the site. The order was handed down by the Kankakee County Circuit Court.

To date approximately 100,000 pounds of scrap metal have been removed from the site by the Cross Brothers. Still on the site are an estimated 10,000 pails and drums, waste material in ten trenches, and significant areas of contaminated soils.

Under the terms of a subsequent court order, the Cross Brothers are utilizing a building on-site for off-specification pail/drum reclamation. Only empty pails/drums are to be processed at the facility. This work does not take place on the contaminated soils portion of the site. The original pail and drum recycling process, which the Cross Brothers managed, was in operation from 1961 until 1980 when the court order previously described went into effect. Subsequently, the operation was started again, though in a more limited manner, after the second court order. The Cross Brothers are presently operating under the limited authority to take only empty containers to the site.

The Illinois Attorney General's Office, with the aid of IEPA and Department of Criminal Investigation inspectors, is continuing to monitor the actions at the site. Appropriate legal measures will be taken should the current court order be violated. Also, action will be taken to insure that the ongoing pail recycling does not interfere with site cleanup operations.

The Office of Regional Counsel has made the necessary notification to potential responsible parties that money from the Hazardous Substance Response Trust Fund is being expended for remedial actions. The status of negotiations with the responsible parties should be obtained from the Office of Regional Counsel.

COMMUNITY RELATIONS

The Illinois Environmental Protection Agency (IEPA) has been the lead agency responsible for conducting community relations at this site. Community relations efforts began in the Fall of 1982 with activities needed to develop a community relations plan (CRP). Site visits and personal interviews with adjacent property owners, health officials, and county and municipal leaders were the primary pre-community relations plan activities.

Following completion of the CRP in April 1983, the IEPA proceeded to fulfill the objectives of the plan by conducting the activities listed below during the Remedial Investigation (RI).

News Release (announcing the start of the Remedial Investigation/Feasibility Study)	05/83
Notification Letters (explaining the need for an RI/FS)	02 & 05/83
Local depositories (established as a source of printed information in the community)	06/83
Fact Sheet #1 (Site History)	07/83
Fact Sheet #2 (The Remedial Investigation and what follows)	08/83
Informal Meeting (Pembroke Area Health Board)	08/84
Fact Sheet #3 (cleanup proposals)	08/84

The focus of the IEPA's community relations program has been to recognize community needs and initiate preventive or corrective action. Recognizing community needs required that the IEPA initiate and maintain a two-way dialogue. This effort resulted in three examples through which the IEPA established its credibility by assisting property owners adjacent to the site. These examples are:

Arranging for health surveys and examinations to identify health problems that might have been caused by drinking contaminated water;

Establishing a drinking water well sampling program to assure residents that their water was safe to drink; and

Arranging for replacement of a malfunctioning well pump in a well which provided drinking water for two and sometimes three families.

Community relations activities continued through the Feasibility Study (FS). Complete copies of the FS were made available on August 14, 1984. Fact Sheet #3, a summary of the cleanup options under consideration, has been distributed. IEPA issued a news story on August 11 and August 14 to the Kankakee Daily Journal and WKAN Radio, which announced the availability of the FS, the start of the public comment period, and the date and location of the public hearing. A paid legal notice announcing the hearing date and public comment period ran August 15, 22, and 29. Two informal meetings were held at the beginning of the public comment period. Attendees at the first meeting included the Mayor, Adminis-

trative Assistant, Township Supervisor, School Superintendent, Editor of the Pembroke Weekly Post, Reporter from the Kankakee Daily Journal, and Village Health Officer. The second meeting was before the Pembroke Area Health Board. The public hearing was held on September 13, and the public comment period ended on September 21. A responsiveness summary is included as Attachment 1.

CURRENT SITE STATUS

Of the 20-acre site, approximately 10 acres have been contaminated by hazardous substances. The estimated volume of hazardous waste on site is shown in Table 1. The estimated volume for visibly contaminated soils is approximately 1000 cubic yards. Highly contaminated soil is estimated to be 42,000 cubic yards.

The existing waste/contamination at the Cross Brothers site, represents a potential environmental or human health threat via the following pathways:

- Direct contact,
- Airborne emissions, and
- Groundwater contamination.

Toxic and hazardous materials are openly exposed at the site, and there are no barriers to prevent direct contact with the waste by people and/or wildlife.

ALTERNATIVE EVALUATION

Before a discussion of alternatives can be meaningful, it should be noted that the alternatives evaluated do not address the possible groundwater contamination problem at the Cross Brothers Site. Source removal was the major issue of the first feasibility study, and several source control actions were developed. However, only land disposal alternatives were developed and evaluated. There are several data limitations and assumptions that make the development of a comprehensive remedial action for the Cross Brothers Site impossible. The study identified several informational deficiencies relating to groundwater contamination. Therefore, remedial action for groundwater contamination has been deferred until those deficiencies can be adequately addressed. The informational deficiencies in relation to groundwater include:

- Lack of groundwater analyses at or near the water table to detect contaminants less dense than water,

- The detection level of the organic analyses were not low enough to show contaminants at levels which may pose a threat to public health (i.e., tetrachloroethylene - the detection level was 1 ppm when the ODW Chronic Health Advisory level is .02 ppm),

- The parameters analyzed were indicators, and did not include substances which were previously identified in the groundwater.

TABLE 1

SUMMARY WASTE INVENTORY

DESCRIPTION	QUANTITY	
SURFICIAL DRUMMED WASTE		
Individual Drums		
- Liquids and sludges	45	
- Solids	136	
- Debris/garbage	42	
- Empty	31	
		254 drums
Two Drum Piles		
- Liquids and sludges	5	
- Solids	20	
- Debris/garbage	5	
- Empty	270	
		300 drums
BURIED WASTE IN TRENCHES		
Drummed Waste (Intact)		
- Liquids	10	
- Solids	290	
- Nonhazardous debris	30	
- Empty	710	
		1,100 drums
Bulk solids and Debris		180 cubic yards
MATERIALS WITHIN VEHICLES		
Empty Containers (crushed)		200 cubic yards
Drummed Wastes		
- Liquids and sludges	11	
- Solids	32	
- Nonhazardous debris	10	
- Empty	7	
		60 drums

Additional testing is also needed to determine the leachability of contaminants present in the soil. This information will enable estimates of future groundwater contamination to be made. It is anticipated that a second feasibility study will be undertaken to investigate groundwater contamination and integrate the cleanup of wide spread soil contamination with groundwater restoration.

A second area in which the feasibility study does not give conclusive information relates to the estimate for the amount of soils that will need to be excavated. The completed feasibility study uses certain criteria for defining contaminated soil. The definition of contaminated soil recommended by the contractor was:

- Metals and cyanides - 50 times the respective drinking water or toxic pollutant water quality criteria.

- Organics - levels based on precedent from other remedial action at Superfund sites.

TOX	- 25 ppm
Benzene	- 12 ppm
Ethyl Benzene	- 15 ppm
Toluene	- 15 ppm

These criteria need to be evaluated as part of a second feasibility study to determine if the levels will adequately protect the public health and environment.

The volume of contaminated soil was calculated, based upon the area encompassing all areas within 50 feet of surficial sample locations (taken on 100-foot centers) where heavy metals, or organic parameters exceed the above criteria to the depth of the groundwater surface. The volume of soil estimated is 42,000 cubic yards. Soil sampling, however, was only conducted at the 1 foot depth level. Therefore, no data exists to substantiate approximately 33,600 cubic yards (approximately 4 feet of soil below the depth for which analytical results are available) of soil labelled contaminated.

With the two points made immediately above as preface, the specific source control options are listed below:

1. Off-site removal and disposal of wastes and contaminated soils. ($6.9 million)

2. Capping of contaminated soil areas with lateral groundwater flow cutoffs (slurry walls) to a depth of 20 feet or keyed into the Yorkville Till at a depth of about 55 feet. ($1.2 or $2.2 million)

3. Construction of an on-site vault in addition to lateral flow cutoffs keyed into the Till. ($1.8 million)

4. On-site containment of contaminated soil with a shallow slurry cut-off wall and cap system. ($1.2 million)

5. Treatment/detoxification of the wastes at the site. (deemed not feasible)

6. No action.

As a part of each of these source control remedial actions, it is recommended that off-site disposal of waste materials be undertaken.

The present state of containerization and heterogeneity of the waste materials suggests that on-site treatment or detoxification would have limited applicability. Treatment of the drummed wastes (either surficial or buried) is not viewed as cost-effective.

The no action alternative is dismissed from further consideration because it does not accomplish the response objective. The response objective is to select the most appropriate, cost-effective, and environmentally sound method(s) for the prevention of further contamination and mitigation of existing contamination at the Cross Brothers Site. Cost-effective remedial action alternatives for the control of waste materials are available.

It is recommended that none of the source control alternatives be implemented at this time. However, initial remedial measures that include the off-site disposal of waste materials and visibly contaminated soils should be carried out at this time. This recommendation is based on the following reasons:

1. the lack of data substantiating the volume of contaminated soil,

2. the lack of data regarding groundwater contamination,

3. the hydrogeologic unsuitability of the site for disposal of hazardous wastes,

4. the need for additional corrective actions, should release of hazardous substances occur from any of the land disposal options,

5. the large volume of contaminated soil in relation to the capacity for hazardous waste disposal in the State.

The lack of soil sampling data to substantiate the estimate of contaminated soil makes the expenditure of a million or more dollars to dispose of contaminated soils a questionable action. A limited number of additional soil samples are needed to verify the assumption regarding the volume of contaminated soil.

The lack of definition of the groundwater contamination does not allow for a total site remedial action to be developed. By first collecting the necessary soil and groundwater data, a comprehensive site remedial action can be developed. This action may well be more cost-effective and more environmentally acceptable than the course of action that is laid out in the feasibility study.

Because the site is situated on highly permeable sand deposits with rapid groundwater velocity, and the reliance on the groundwater as a source of drinking water by nearby residents, the site is not suitable for on-site disposal options.

In addition, the thickness of the sand layer makes keying a slurry wall into a relatively impermeable layer a difficult construction task. A "hanging" slurry wall has questionable reliability in regard to an isolation of contaminants in the groundwater. Either slurry wall option has a questionable effective life-span.

The geologic setting of the site that contributed to the high HRS score and subsequent inclusion on the NPL also would necessitate complicated future corrective actions should the on-site disposal options fail, and a release of hazardous substances to the environment occur. The costs associated with a corrective action could also be greatly influenced by the geologic setting.

Off-site disposal of contaminated soils is not recommended at this time for two primary reasons. First, the volume of contaminated soil is unknown because of the previously mentioned lack of substantiating analytical data. Second, a large portion of the existing hazardous waste disposal capacity in the State would be utilized if this volume is an accurate estimate. The IEPA wants to pursue a remedial action that will concentrate the widely distributed hazardous substances in the soil. An example of a means of concentration of hazardous substances is flushing contaminants from the soil into the groundwater, and then extraction and treatment of the groundwater through granular activated carbon or air stripping and an air emission control setup. The hazardous substances become concentrated on the carbon or in the emission control system and can then be disposed or regenerated.

Table 2 provides a matrix evaluation of the remedial measures applicable to the waste material and visibly contaminated soils. From this relative evaluation, it can be seen that the alternative with the highest ranking is off-site disposal.

The summary of costs for the recommended initial remedial measure is presented in Table 3.

By conducting the recommended initial remedial measures, the major source of hazardous substance release to the groundwater will be eliminated.

Further study can then be performed, without further significant groundwater degradation, to determine the cost-effective long-term remedial action for contaminated groundwater and soil.

SCHEDULE

The Illinois Environmental Protection Agency requests the lead on implementing the recommended initial remedial measures. Therefore, it will be necessary for a Cooperative Agreement to be in place between the IEPA and the U.S. EPA for project funding. The following schedule is estimated from days after the Cooperative Agreement award.

ACTIVITY	ESTIMATED SCHEDULE
Preparation of bidding documents	30 days
Advertise for competitive bids	45 days
Open bids	105 days
Award Contract	120 days
Completion of implementation	330 days

SUMMARY

This Record of Decision supports a recommendation that initial remedial measures be undertaken at the Cross Brothers Site. Those measures would consist of:

1. Removal of surface containers,

2. Excavation of buried trenches, and

3. Excavation of visibly contaminated soils.

The estimated cost of the project is $377,728.00, and it should be accomplished in just under one year's time.

FUTURE ACTIVITIES

A feasibility study to address groundwater and soil contamination will be conducted. A Cooperative Agreement (CA) application will be submitted for this action concurrently within the CA for the IRM. Procurement will proceed as quickly as practical. The study should be completed by late 1985.

TABLE 2
RELATIVE MERITS OF ALTERNATIVE TECHNOLOGIES
CONTROL OF WASTE SOURCES(1)

EVALUATION FACTOR	CRITERIA	ALTERNATIVE (2) OFF-SITE DISPOSAL	ON-SITE DISPOSAL(3)	CONTAINMENT(3) A(4)	CONTAINMENT(3) B(4)	TREATMENT/ DETOXIFICATION
Technical Performance	Proven Technology	4	3	2	2	0
	Degree of Ground Water Protection Provided	4	3	1	2	4
	Elimination of Direct Contact and Airborne Dispersion Pathways	4	4	4	4	4
Comparative Cost	Capital Cost	3	4	4	3	1
	Operation and Maintenance Cost	4	3	3	3	4
	Cost Certainty	2	3	4	4	1
Implementation	Effort Required for Design/ Approval	4	3	1	2	1
	Time Required to Implement	4	2	3	2	1
	Constructability	4	3	4	3	1
Risk Assessment	Long-Term Liability	4	3	1	2	3
	Risk of Failure	4	3	1	2	1
Environmental Impact	Future Site Use	4	3	2	2	3
	Potential Health/ Environmental Impacts During Construction	3	2	4	4	1
	Public Acceptance	4	3	1	2	1
TOTAL SCREENING SCORE		52	42	35	37	--

TABLE 2 (CONTINUED)

(1)Sources defined as surficial drummed and buried wastes in trenches, and visibly contaminated soil.

(2)Legend (relative scores): 4 - Most Favorable
3 - Favorable
2 - Intermediate
1 - Unfavorable
0 - Abortive

(3)Assume facility/system concurrently developed to handle contaminated soils.

(4)Subalternative A - Extend cutoff to trap organics near water table.
Subalternative B - Extend cutoff to aquiclude (Yorkville Till).

TABLE 3

CONSTRUCTION COST ESTIMATE
WASTE REMOVAL AND OFF-SITE DISPOSAL (1)

ITEMS	UNITS	QUANTITY	UNIT COST ($)	TOTAL COST ($)
Mobilization, Setup, and Other Fixed Costs (2)	LS	Job	55,000.00	55,000
Excavation of Buried Trenches	CY	500(3)	20.00	10,000
Excavation of Visually Contaminated Soils	CY	1,000	3.00	3,000
Segregation and Staging of Surficial and Buried Drummed Wastes	Drum	1,714(3)	15.00	25,710
Sampling and Analysis of Drummed Wastes	Each	500	25.00	12,500
Sampling and Analysis of Contaminated Soil and Debris	Each	45	200.00	9,000
Transportation and Disposal of Empty Drums	Drum	1,018	2.00	2,036
Transportation and Disposal of Drums of Nonhazadous Debris	Drum	147	4.00	588
Transportation and Disoosal of Liquid Wastes	Gal	10,000(4)	0.25	2,500
Transportation and Disposal of Drummed Solids and Contaminated Soil	Drum	478	55.00	26,290
Transportation and Disposal of Bulk Solids	CY	1,480	100.00	148,000
Grading and Placement of Clean Fill	CY	1,500	9.00	13,500
SUBTOTAL	-	-	-	308,124

TABLE 3 (CONTINUED)

ITEMS	UNITS	QUANTITY	UNIT COST ($)	TOTAL COST ($)
Engineering	LS	Job	13,500.00	13,500
Construction Management	LS	Job	15,400.00	15,400
TOTAL	-	-	-	337,024

(1) Waste defined as surficial drummed materials, materials in buried trenches, and visibly contaminated soils.

(2) Includes fencing, site security, health and safety, and environmental monitoring.

(3) Includes buried drums encountered during trench excavation.

(4) Includes drummed liquids and decontaminated water

COMMUNITY RELATIONS RESPONSIVENESS SUMMARY
CROSS BROTHERS PAIL RECYCLING SITE
PEMBROKE, ILLINOIS
PREPARED BY ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Agency (IEPA) has been responsible for conducting a community relations program for this site. Community relations activities have been part of the remedial investigation and feasibility study (RI/FS). During the feasibility study, a 4-week public comment period, which included two meetings and a public hearing, were held to receive public comments on proposed cleanup options. This Community Relations Responsivness Summary documents milestone community relations activities along with citizen questions and concerns raised before and during the public comment period and the IEPA's response.

COMMUNITY RELATIONS

Remedial Investigation

Since the fall of 1982, the IEPA has met with residents and local officials to discuss citizen concerns and steps in the cleanup process for the Cross Brothers site. In addition, the IEPA completed the following activities during the course of the remedial investigation (RI).

Notification letters (explaining the need for a remedial investigation and feasibility study)	02/83, 05/83
News release (announcing the start of the RI/FS)	05/83
Local depositories (established as a source of printed information in the community)	06/83
Fact Sheet #1 (site history)	07/83
Fact Sheet #2 (the remedial investigation and what follows)	08/83
Informal meeting (Pembroke Area Health Board)	08/84
Fact Sheet #3 (cleanup proposals)	08/84

During the remedial investigation, the IEPA also arranged for replacement of a malfunctioning drinking water well pump; established a drinking water well sampling program for nearby wells; and arranged for health surveys and examinations to identify health problems that might have been caused by drinking contaminated water.

Feasibility Study

Complete copies of the feasibility study (FS) were made available on August 14, 1984. IEPA issued a news story to the Kankakee Daily Journal and WKAN Radio which announced the availability of the FS, the start of the public comment period, and the date and location of the public hearing. A paid legal notice announcing the hearing date and public comment period was published on August 15, 22, and 29 and posted at the village hall. Fact Sheet #3, a summary of the cleanup options, was placed in the depositories and mailed to those on the IEPA mailing list.

Two informal meetings were held at the beginning of the public comment period. Attendees at the first meeting included the Mayor, Administrative Assistant, Township Supervisor, School Superintendent, editor of the Pembroke Weekly Post, reporter from the Kankakee Daily Journal, and the Village Health Officer. The second meeting was before the Pembroke Area Health Board.

A public hearing was held at the Village Hall on September 13 to present the feasibility study and to solicit public comment. Approximate attendance was 50, 13 of whom were from Kankakee. Twelve attendees made public statements, and three written statements were received regarding the proposed cleanup options. Off-site removal of the waste was unanimously supported by the audience. Two of the written statements supported the cleanup option preferred by the IEPA. One of the written statements was a petition signed by 17 residents of Pembroke, some of whom live adjacent to the site. The other written statement supported complete excavation.

CITIZEN QUESTIONS & CONCERNS

Issue: Operation of the Cross Brothers site

QUESTION: Why is the site being cleaned up and how did the waste get into the soil?

RESPONSE: Waste entered the soil when the Cross Brothers emptied the contents of buckets and barrels in different locations on the site. Waste also leaked into the soil from several hundred containers buried by the Cross Brothers. While the site does not appear to present a public health threat from exposure on the surface of the site, waste seeping through the soil could cause continued groundwater contamination. Therefore, containers must be removed, and the waste which is still in the ground must be prevented from reaching drinking water wells.

QUESTION: When IEPA first learned of the site in 1980, did they know what chemicals were there?

RESPONSE: Initial IEPA inspections found more than 5,000 containers scattered across the 20-acre site. Preliminary sampling of waste from the containers and drinking water wells indicated the presence of paints, inks, and solvents. The Agency recognized the need for a thorough investigation of the site to determine what was buried and its location. The investigation, referred to as the remedial investigation, was completed in October 1983. This investigation uncovered the presence of benzene, xylene, and toluene. There were also small quantities of tetrachloroethylene, lead, nickel, and cyanide identified at the site.

QUESTION: Could James and Abner Cross be held liable for dumping waste at the site?

RESPONSE: Yes.

QUESTION: A court order had stopped the Cross Brothers from operating, but shipments of containers are now being unloaded at the site. Why?

RESPONSE: The Cross Brothers requested permission to accept only empty containers at their Pembroke location. This request was granted by the Twelfth Judicial Circuit Court on July 8, 1983. If the Cross Brothers violate this order by accepting containers with hazardous waste or if they violate the Environmental Protection Act in the process of painting empty containers, the Attorney General's staff feels that another court order halting the Cross Brothers' operations could be obtained.

QUESTION: Is anyone checking on the Cross Brothers operation to determine if they are complying with the latest court order by accepting only empty containers?

RESPONSE: The Illinois Department of Criminal Investigation has been notified of the Cross Brothers operation, and the IEPA will continue to conduct investigations of the site. If anyone in the area observes dumping of waste, they should note the date and time of day and report this to the Mayor, Pembroke Area Health Department or the IEPA.

Issue: Drinking water

QUESTION: Which way does the groundwater flow from the site?

RESPONSE: The groundwater flows to the north and northeast.

QUESTION: Have chemical wastes from the site appeared in drinking water wells south of the site?

RESPONSE: Drinking water wells and monitoring wells located south of the site do not show chemical contamination associated with the site. Problems observed in Prince Phillips' well are not related to waste from the Cross Brothers site.

QUESTION: Area farmers located north of Pembroke are using water for irrigation. This water use is drawing down deep wells used by Pembroke Township residents. Is this practice drawing contaminated groundwater from the site into deep wells used by Pembroke Township residents?

RESPONSE: Samples have been taken by the IEPA from residential wells located between the Cross Brothers site and deep wells used by farmers. Analyses of these samples do not show contamination.

QUESTION: Which drinking water wells have been contaminated by waste from the Cross Brothers site?

RESPONSE: Shallow drinking water wells serving the Roy Clybourn and George Robinson families have been contaminated. New wells drilled to deeper depths have been installed and sampled. Both of these new wells are providing safe drinking water.

QUESTION: If I want my drinking water checked, who should I contact?

RESPONSE: You should contact Jeanette Swan, Pembroke Health Officer; the Pembroke Area Health Department; or the Illinois Department of Public Health (IDPH).

Issue: Cleanup options

QUESTION: Would any of the proposed cleanup options affect the construction or operation of a sewage treatment project planned for this area?

RESPONSE: No.

COMMENT: Cleanup option #4, on-site vault with slurry walls, is inadequate without a synthetic layer or leachate collection system.

RESPONSE: The IEPA agrees that this change would be needed in the design of cleanup option #4.

COMMENT: Support for cleanup option #5 which is complete excavation of the contaminated soil and containers, was announced by Mayor Haney, Township Supervisor Hays, and Jim Yoho who represents Concerned Citizens' Coalition for a Better Community.

QUESTION: Why can't the contaminated soil be moved off the site?

RESPONSE: Moving the contaminated soil off the site would require that 42,000 cubic yards of soil be excavated from this site and buried in a landfill at another location. This is not a permanent solution. Moving contaminated soil to another location only moves the threat of release of hazardous substances to another communtiy, it does not eliminate the threat. This is also impractical because of the large volume of soil. Over 2,000 truck shipments would be needed to move this much soil.

This Agency prefers to evaluate flushing the soil as described in cleanup option #6. Flushing the soil will remove the hazardous substance from the soil and concentrate the pollutants into a much smaller volume that can be detoxified.

QUESTION: If cleanup option #6 is such an easy answer, why does our society have the disposal problems with hazardous waste that it is experiencing?

RESPONSE: There are thousands of different types of substances that can be classified as hazardous. Hazardous wastes have been improperly dumped at a variety of locations each with different geological conditions. If organic hazardous wastes, such as those found at the Cross Brothers Site, are in the soil, they cannot be easily treated. However, if the same organic wastes are in water, they can be more easily treated than in soil. Therefore, one particular disposal method cannot be applied to every type of hazardous waste in every situation.

Cleanup option #6 is not an easy solution that is adaptable to every situation. Although this solution has been successfully used at other sites, it appears that it is more effective at some sites than at others. Factors such as the type of soil and contaminants present suggest that this solution will be effective at this site.

Recent Federal legislation has changed the economics of hazardous waste disposal. Landfilling has historically been one of the least expensive methods of waste disposal, and was heavily relied upon by private industry. Chemical treatment and incineration are only now becoming cost competitive with landfilling. Landfilling is still less expensive in most instances, but is not the most environmentally suitable choice.

QUESTION: If a treatment facility is built as proposed in cleanup option #6, where would it be built, and could it be constructed while the Cross Brothers are operating?

RESPONSE: The treatment facility would be built on the Cross Brothers Site, not on adjacent property. The IEPA is not sure whether this facility could be built if the Cross Brothers are still operating. The Cross Brothers may have to stop operations if this facility is constructed.

QUESTION: How long will it take from now (September 13) until cleanup is completed?

RESPONSE: Regardless of which option the United States Environmental Protection Agency (USEPA) selects, cleanup will be conducted in two phases. The first phase involves removal of all the containers, both on the surface and buried. Although weather conditions will affect how quickly this phase progresses, all the containers should be removed before the end of next summer. The second phase of the cleanup, handling contaminated soil, would take between 2-5 years, depending upon which option is selected by USEPA.

QUESTION: Who would pay for the cleanup option ultimately selected?

RESPONSE: Before the State and Federal Governments proceed with spending money for cleanup, the Cross Brothers and other responsible parties will be requested to undertake the cleanup. If they decline, then State and Federal money will be used to finance cleanup. In certain limited circumstances, responsible parties may be liable for damages equal to three times the government's cleanup cost.

Issue: Public health

QUESTION: I have a garden and live near the site. Is the waste dumped by the Cross Brothers affecting my crops?

RESPONSE: Waste dumped at this site is moving off the site primarily through the groundwater. As long as the root system of the crops planted in your garden do not tap into the groundwater, there is no danger. Some crops whose root system does tap into groundwater, will not necessarily draw contaminants into the plant. If you are in doubt as to whether your crops tap into the groundwater, you should check with your local agricultural extension service in Kankakee County.

QUESTION: Is there any information from our office or IDPH that discusses health problems related to waste at this site?

RESPONSE: The IEPA requested IDPH to conduct a health survey and examinations for the Clybourn and Robinson families since they had consumed contaminated drinking water. Health examinations were conducted and evaluated by the Cook County Hospital, Division of Occupational Medicine. Their findings concluded that no evidence of any significant health problems as a result of possible toxic exposure, were found. Seven of the individuals tested had elevated levels of liver enyzymes, but this is unrelated to toxic exposure.

QUESTION: Has any health study been conducted to determine if there is a correlation between death rates in Pembroke Township and waste dumped at the Cross Brothers Site?

RESPONSE: No. Inquiries about further health studies should be addressed to health organizations such as the Center for Disease Control or IDPH.

QUESTION: What are the short and long-term health effects from exposure to wastes dumped at the site?

RESPONSE: The concentration of waste and length of exposure are key determinants as to what kinds of health effects, if any, people in Pembroke would experience.

Short-term health effects include skin rash, nausea, and irritation of the eyes, ears, nose and throat. Some of these symptoms may disappear after initial exposure. Long-term exposure to wastes found at this site may affect the central nervous system, liver and kidneys.

Since virtually all of the waste is in containers and underground, the primary way in which residents could become exposed to this waste is through the drinking water. Shallow wells serving the Clybourn and Robinson families have been the only wells found to be affected by waste from this site. Monitoring wells are being used to make sure that the contamination does not reach other drinking water wells.

Issue: Cleanup process

COMMENT: If it (the cleanup option) doesn't work, the community will be stuck.

QUESTION: After the cleanup is finished, will any contamination remain that could contaminate drinking water?

RESPONSE: The State of Illinois and any responsible parties will be responsible for monitoring and maintaining the site. Additional monitoring wells will be installed to check the groundwater. If contamination is found in these monitoring wells, appropriate follow-up work will be initiated.

QUESTION: Who will make the final decision as to which cleanup choice is selected?

RESPONSE: The IEPA will recommend a choice, but the USEPA will decide which cleanup choice is used.

QUESTION: Does the community have any voice in the selection of a cleanup option?

RESPONSE: Yes. Community questions and concerns are evaluated along with geologic, environmental, and other technical factors when the IEPA recommends a cleanup option. These same questions and concerns are forwarded to USEPA who will make the final decision.

Additional Comments

COMMENT: This part of the State has taken hazardous waste from all over the country.

RESPONSE: No permitted hazardous waste disposal facilities exist in Kankakee County.

COMMENT: There is no conceivable amount of hazardous waste that anyone should be exposed to.

RESPONSE: Small quantities of hazardous substances are found in many households. Drain opener, spot and fingernail polish remover, hair care products, paint thinner, septic tank cleaner, insect repellent, and television sets are some of the items that contain hazardous substances.